PARCEL E REMEDIAL DESIGN MEETING

HUNTERS POINT NAVAL SHIPYARD (HPNS), SAN FRANCISCO, CALIFORNIA
March 15, 2017

Participants: Danielle Janda, Naval Facilities Engineering Command (NAVFAC) Southwest Headquarters (HQ) Base Realignment and Closure (BRAC) Program Management Office (PMO), Lead Remedial Project Manager (LRPM)
Rebecca Cardoso, NAVFAC Southwest BRAC PMO Remedial Project Manager (LRPM)
Lily Lee, U.S. Environmental Protection Agency (EPA) RPM
Judy Huang, EPA RPM
Martin Hausladen, EPA (via telephone)
Karla Brasaemle, TechLaw
Juanita Bacey, Department of Toxic Substances Control (DTSC)/CalEPA RPM (via telephone)
Buck King, DTSC/CalEPA (via telephone)
Peter Gathungu, DTSC/CalEPA (via telephone)
Tina Low, San Francisco Regional Water Quality Control Board (Regional Water Board) RPM (via telephone)
Victoria Brandt, California Department of Public Health (CDPH)–Radiological Health Branch (RHB) (via telephone)
Tracy Jue, CDPH-Environmental Management Branch (EMB) (via telephone)
Amy Brownell, San Francisco Department of Public Health (SFDPH)
Sigrida Reinis, Langan
Dustyne Sutherland, Langan
Jessica Ramirez, GeoSyntec (via telephone)
Doug Bielskis, Construction Engineering Services, LLC (CES)
Emily Siegel, CES
Tamzen Macbeth, CDM Smith (via telephone)
Jagrut Jathal, CDM Smith (via telephone)
Tim Kemper, Chicago Bridge & Iron Company (CB&I) (via telephone)

Attachment(s) to the HPNS Parcel E RD Meeting Minutes:

1. HPNS Parcel E Draft Remedial Design/Design Basis Report Meeting Agenda
2. Parcel E Remedial Design Draft Discussion Meeting Presentation

I. Remedial Design Strategy at Parcel E– BRAC PMO (Attachment 2) – Ms. Rebecca Cardoso (RPM)

Ms. Cardoso summarized key concepts of the Draft Remedial Design (RD) for Parcel E, with a specific focus on strategies for addressing soil, soil vapor and groundwater contamination. Ms. Cardoso reminded the group that comments on the Draft RD are due on March 29, 2017.

a. Strategy for Soil (Non-Radiological) (Slide 3)

For non-radiological soil contamination, the Navy will remove soil exceeding the Tier 2 action levels at locations that were bounded by previous characterization sampling. Following excavation and off-site disposal at these areas, the Navy will install durable covers (consisting of either asphalt, soil, or shoreline armor material) and implement institutional controls (ICs) to prevent any remaining exposure to contamination exceeding remediation goals (RGs).

Ms. Judy Huang asked what type of durable cover would be installed in Installation Restoration Site 3 (IR-03). Ms. Cardoso responded that IR-03 will have a geomembrane liner overlain by a soil cover.

Ms. Amy Brownell asked where demarcation layers will be located. Mr. Doug Bielskis replied that the demarcation layer, which will consist of an orange geosynthetic fabric with magnetic marking tape, will be installed throughout IR-02 and IR-03.

b. Strategy for Radiological Media (Slide 4)

Ms. Cardoso described the remediation approaches for different radiologically-impacted areas at Parcel E. Ms. Cardoso stated that IR-02 and IR-03, which are fill areas located adjacent to the bay, will not be radiologically "free-released" but instead will have surface scans and remediation within the top foot of soil, placement of a two foot thick soil cover, and capping of sanitary sewer, storm drain and septic lines. At the IR-12 Salvage Yard, the Navy will perform surface scans and sampling during excavations and conduct a final radiological survey to facilitate "free-release." Storm drain and sewer lines outside of IR-02 and IR-03will be removed, and this work is a continuation of a previously-initiated time-critical removal action (TCRA).

c. Strategy for Soil Vapor (Slide 5)

The remedial strategy for volatile organic compounds (VOCs) in soil gas is to prevent exposure by source reduction and pathway elimination. VOC sources in the unsaturated zone will be reduced by excavation and off-site disposal at IR-04 and outside of Building 406, and installation of a soil vapor extraction (SVE) system within Building 406. VOC sources in the saturated zone will be reduced by in-situ groundwater treatment below Building 406 and other VOC plumes, as needed. Exposure to remaining VOCs contamination will be prevented by ICs and monitoring.

Ms. Brownell asked if the Navy is concerned about vapors crossing from Building 406 to Parcel G. Ms. Cardoso responded that the design evaluated soil gas data on both sides of the Parcel E/G boundary. Mr. Bielskis also stated that soil and groundwater data (shown on Design Basis Report [DBR] Figures 27 and 29) indicate that the source of VOC contamination is within Parcel E (under Building 406 and several adjacent areas). After implementing actions to reduce these VOC sources, regular soil gas and groundwater monitoring will be performed in the area to evaluate VOC concentrations in soil gas along the Parcel E/G boundary.

Ms. Lily Lee asked if the planned actions would be affected by the recent radiological findings within Building 406 (from rescans that were completed in August 2016). Ms. Danielle Janda responded that the radiological scans were conducted under a separate TCRA and that the findings would not be addressed in the RD. However, the radiological scan did not identify conditions that would impact the proposed VOC remediation work, and any issues associated with rescans will be resolved prior to property transfer.

d. Strategy for Groundwater (Slide 6)

The remedial strategy for groundwater differs for the inland VOC plumes and the near-shore metals, polychlorinated biphenyl (PCB), and petroleum hydrocarbon plumes. Additional groundwater characterization is needed at the IR-04 and IR-12A VOC plumes to determine the necessity for injections. A targeted, short-term treatment action is proposed for the Building 406 VOC plume and, if needed, the

IR-04 and IR-12 VOC plumes. Metal, PCB, and petroleum plumes in the near-shore area will be remediated by excavation of the source, and containment by a slurry wall and soil cover with a protective liner. The slurry wall will surround IR-03 while the slurry wall at IR-02 Northwest will be installed parallel to the shoreline (thereby creating a longer groundwater flow path towards the San Francisco Bay to allow for groundwater contamination to attenuate prior to discharge). All plumes will be monitored for natural attenuation and ICs will be implemented until remedial action objectives (RAOs) are met.

Ms. Karla Brasaemle asked if the same materials and construction techniques will be used for the continuous slurry wall in IR-02 Northwest and IR-03 and if the slurry wall in Parcel E-2 extends into Parcel E. Ms. Cardoso and Mr. Bielskis confirmed that both walls will be constructed using the same techniques. Mr. Bielskis stated that the slurry wall mix at IR-02 Northwest would be similar to the Parcel E-2 slurry wall (consisting of a cement-bentonite mix that results in a stronger material to improve slope stability) and would overlap at the Parcel E/E-2 boundary. Mr. Bielskis stated that the location and configuration of the IR-03 slurry wall allow for a more traditional soil-bentonite slurry wall mix.

e. Strategy for IR-03 (Oily Waste Ponds) (Slide 7)

The strategy for non-aqueous phase liquids (NAPL) contamination in IR-03 (Oily Waste Ponds) will be stabilization of NAPL; prevention of groundwater migration by a slurry wall, soil cover/liner, and groundwater treatment, if necessary; and long-term management by ICs and groundwater monitoring. NAPL will be stabilized by in-situ solidification/stabilization (ISS) treatment on the landward side of the slurry wall and excavation of NAPL contamination to 20 feet below ground surface (to the Bay Mud surface) along the shoreline. Ms. Brasaemle asked if vertical delineation sampling would be conducted to confirm the excavation depth. Mr. Bielskis replied that sampling is restricted by debris in the shoreline zone and the excavation depth would extend to the Bay Mud surface, which can be visually identified in the field and serves as a barrier for downward migration of contamination. Ms. Huang agreed with the determination for vertical extent of excavation, but clarified that there was a concern regarding the delineation of the horizontal extent of contamination, specifically as it relates to ensuring that contamination would not extend into Parcel F. Mr. Bielskis and Ms. Tamzen Macbeth confirmed that borings installed during previous studies did not show NAPL contamination at the Parcel E/F boundary (where the shoreline slope meets the 0-foot mean sea level elevation), and that that Bay Mud was encountered at very shallow depths in this area. Mr. Bielskis explained that the Bay Mud surface deepens at inland locations (based on the historic placement of fill) and the slope of the Bay Mud surface limits the potential for horizontal migration of NAPL towards the San Francisco Bay.

Ms. Brasaemle had remaining concern that groundwater wells installed on the shoreline side of the sheetpile wall contained NAPL, questioning the depth and lateral extent of this contamination. Ms. Janda and Mr. Bielskis responded that the sheetpile wall is on top of the shoreline slope, and the proposed excavation would encompass that wells that contained NAPL and extend to the Parcel E/F boundary. Ms. Brasaemle asked what modifications would be made if NAPL is identified at the Parcel E/F boundary during excavation. Ms. Huang requested that the Navy be able to confirm with certainty that NAPL will not be encountered at the Parcel E/F boundary and requested that the Navy add language to the RD to describe the contingency actions if NAPL is encountered beyond the Parcel E/F boundary. Ms. Cardoso responded that the Navy would revisit the conceptual site model (CSM) for Parcel F if NAPL is encountered at the boundary. Ms. Janda added that the Navy would describe contingency actions into the RD, and that such actions would require coordination with the upcoming remedial design for Parcel F. Mr. Bielskis added that the confirmation sampling approach for the excavation would be deferred to the future Remedial Action Work Plan.

Ms. Huang asked whether the Navy had performed bench tests to evaluate the effectiveness of ISS in the presence of high PCB concentrations, and if the Navy has ISS contingency designs for if concentrations of NAPL in soil were too high to be properly stabilize. Ms. Cardoso replied that the Navy will further discuss the potential need to modify ISS under varying soil contamination. Ms. Brasaemle asked what the Navy

would do with excess materials produced during ISS implementation. Ms. Macbeth responded that the design plan minimizes excess material (approximately <20 percent) by reducing the amount of cement and bentonite and supplementing with Bay Mud. Mr. Jagrut Jathal added that overages would mostly manifest in a ground surface heave with minimal solid waste material that would need to be characterized and disposed of off-site.

f. Next Steps (Slide 8)

Ms. Cardoso reviewed the schedule for finalizing the RD. Comments on the Draft RD are due on March 29, 2017. The Navy will respond to agency comments and transmit a Revised Draft RD by September 2017. The Draft Final RD is anticipated in January 2018 and the Final RD in February 2018.

CB&I has been contracted to begin the first phase the Remedial Action field work. The Navy will work with CB&I to submit a Draft Remedial Action Work Plan shortly after the Final RD.

II. Questions and discussion from the Base Closure Team – Ms. Rebecca Cardoso (RPM)

Ms. Tracy Jue requested verification that the storm sewers outside of IR-02 would be addressed at a later date. Ms. Janda and Ms. Cardoso responded that the storm drains are being addressed under the ongoing radiological TCRA, the goals for which are identical to those identified in the Record of Decision (ROD).

Ms. Jessica Ramirez asked about the design for surface drainage channels and their permitting. Mr. Bielskis replied that drainage channels for the durable cover remedy will match the surrounding surface restoration. In the inland areas where there will be an asphalt cover, the drainage channels will be paved with asphalt. In the soil cover areas, the channels will be earthen/vegetated swales. Discharge points will be integrated from surface culverts to low-lying shoreline areas where water will drain to a rock layer overlain by sand. Permitting will not be necessary because the features are part of an on-site Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) response action.

Ms. Brasaemle asked about the magnitude of storm event upon which the design was based. Ms. Cardoso confirmed that the design of the surface drainage features are designed to withstand peak flows of a 1000-year storm event (24 hour storm with up to 7 inches of rain). The drainage channels are a temporary conveyance of water that will be maintained until the property is transferred.

Ms. Victoria Brandt asked that the Navy present a list of the radionuclides historically used on Parcel E in the RD. Ms. Janda replied that these radionuclides are presented in the radiological addendum to the Feasibility Study (FS) and can be added to the nature and extent of contamination discussion of the RD. Mr. Bielskis expanded that the RD text may not discuss the radionuclides, as much of the radiological contamination has been removed during previous removal actions; however, Table 8 of the DBR lists remediation goals for all radionuclides in Parcel E. The Navy will ensure that Table 8 is referenced in Section 2.5.5. of the text and previous TCRAs that removed radiological contamination are discussed.

Ms. Brandt sought clarification on the radiological remediation to take place in the area of the 500-series buildings, and the depiction of radiologically impacted areas shown on Figure 3 of the DBR and Figure 3 of the O&M Plan, which appear to show a small radiologically-impacted area not having a demarcation layer beneath the soil cover. Ms. Janda responded that any areas outside of IR-02 that are radiologically-impacted will be remediated and "free-released," therefore do not need ICs and demarcation layer. Ms. Cardoso and Mr. Bielskis clarified that a demarcation layer will be installed in all areas that are not "free-released" (all of IR-02 and IR-03). The Navy will review the figures and resolve potential discrepancies.

Mr. Peter Gathungu questioned why the Navy designed a 2-foot-thick soil cover in radiologically-impacted areas, whereas at IR-07/18 a 3-foot-thick soil cover was constructed. Mr. Bielskis clarified that within IR-02 and IR-03, the upper foot of soil will be scanned and remediated for radiological contamination exceeding RGs, followed by placement of the demarcation layer two feet of clean soil. The protectiveness of 2-foot-thick soil cover was evaluated, using radiological dose modeling (via the RESRAD computer

program), in the radiological addendum to the Parcel E FS. In addition, Mr. Bielskis explained that future ICs will ensure proper protocols and training are used during ground-disturbing activities, and that these controls will be communicated to the future land owners. Ms. Brownell reaffirmed that future land owners who will be converting the parcel to a park will be large developers who must undergo significant planning and permitting before digging, that will confirm adherence to radiological safety protocols. Mr. Gathungu asked if burrowing animals have been considered. Mr. Bielskis responded that the O&M Plan for Parcel E is consistent with the O&M plan developed for Parcel E-2, and incorporate inspection and control procedures for burrowing animals.

Ms. Juanita Bacey referred to a footnote in the DBR text stating that dioxins in soil are below five-times and ten-times the RGs. The Remedial Investigation Report identified high dioxin concentrations (in IR-02 Southeast), but the RD did not discuss how the dioxin concentrations in this area were reduced. Mr. Bielskis responded that a TCRA between 2005 and 2007 was conducted to remove contamination in the former Metal Debris Reef. Confirmation sampling results from the TCRA were compared to current remediation criteria (Tier 1 and Tier 2 action levels) in the FS and were used to determine excavation areas presented in the RD. The Navy will add text to the DBR to better describe the TCRA at the former Metal Debris Reef.

Ms. Bacey asked for clarification of what the Navy would do if steam line closures do not require complete removal of asbestos-containing insulation. Ms. Cardoso confirmed that the future owner would remediate asbestos left in place, which is consistent with the process followed at other parcels. However, Ms. Cardoso noted that significant amounts of steam lines may be removed and, in this situation, asbestos-containing insulation would be properly handled and disposed of.

Ms. Bacey requested that dust control plans created for Parcel E include action levels according to specific concentrations of contaminants and distance from potential receptors.

Based on a question from Ms. Dustyne Sutherland, Ms. Cardoso indicated that site-specific soil gas action levels (SGALs) would be calculated and presented in a future Remedial Action Work Plan following further data collection and evaluation.

Mr. Gathungu questioned the basis for determining groundwater treatment design criteria (GWTDCs), as the EPA values are higher than 2016 DTSC human and ecological risk values for tetrachloroethylene and vinyl chloride Ms. Cardoso clarified that the groundwater treatment design criteria values are criteria to guide groundwater treatment and are not remediation goals. Mr. Bielskis added that the available groundwater data is compared to the GWTDCs to identify an area for groundwater treatment. Soil gas sampling following groundwater treatment will confirm if concentrations have been sufficiently reduced.

Mr. Gathungu asked if the asphalt-capped areas are designed for vehicular traffic and if traffic loading is expected. Mr. Bielskis replied that the asphalt cover is designed to handle current traffic conditions, and that the design is consistent with the asphalt covers constructed in other parcels. Ms. Cardoso added that the asphalt cover is likely to be removed by the future developer and will be replaced in areas by roads in the owner's determined configurations. Mr. Gathungu asked if vehicle access would be restricted on the pavement. Ms. Janda indicated that access will likely be restricted until the asphalt cover is removed during property redevelopment.

Mr. Gathungu asked why the ISS treatment area is smaller than the NAPL-contaminated area. Ms. Macbeth clarified that the previous studies differentiated between mobile and immobile NAPL. The ISS treatment will immobilize and treat mobile NAPL, within the total NAPL boundary. Residual NAPL outside of the ISS treatment boundary is immobile and will be contained by the slurry wall. These NAPL boundaries are shown in Figure 34 of the DBR.

Attachment 1. HPNS Parcel E Draft Remedial Design/Design Basis Report Meeting Agenda

Meeting to Discuss HPNS Parcel E
Draft Remedial Design/Design Basis Report
March 15, 2017, 11 AM-1 PM
580 California Street, Floor 12
Call-in number: 1-855-336-6718; Conference ID: 85458715

Attendees:

Rebecca Cardoso, Navy BRAC PMO, RPM for Parcel E
Danielle Janda, Navy BRAC PMO, Lead RPM for HPNS
- Doug Bielskis, Contractor for US Navy (CES/ERRG)
- Emily Siegel, Contractor for US Navy (CES/ERRG)
- Tamzen Macbeth, Contractor for US Navy (CDMSmith)
- Jathal Jagrut, Contractor for US Navy (CDMSmith)
- Tim Kemper, Contractor for US Navy (CB&I)

Lily Lee, USEPA RPM
Judy Huang, USEPA RPM
Martin Hausladen, USEPA RPM
- Karla Brasaemle, Contractor for USEPA (TechLaw)

Juanita (Nina) Bacey, DTSC/CalEPA RPM
Buck King, DTSC/CalEPA
Victoria Brandt, CDPH – RHB

Amy Brownell, SFDPH
- Dustyne Sutherland, Contractor for SFDPH (Langan)
- Sigrida Reinis, Contractor for SFDPH (Langan)
- Jessica Ramirez, Contractor for FivePoint (GeoSyntec)

Tina Low, SFRWQCB RPM

Agenda:

11:00 AM – 11:20 AM	Navy Presentation of Remedial Design Strategy at Parcel E
11:20 AM – 12:45 PM	Questions and discussion from the Base Closure Team
12:45 PM – 1:00 PM	Meeting summary, discussion of further action

Due date for comments to Navy is March 29, 2017. For any follow-on discussion, please contact:

Rebecca Cardoso, Navy RPM	Rebecca.cardoso@navy.mil	619-524-5795
Danielle Janda, Navy Lead RPM	Danielle.janda@navy.mil	619-524-6041

Attachment 2. Parcel E Remedial Design Draft Discussion Meeting Presentation

March 15, 2017, HPNS Parcel E RD Meeting

NAVFAC
Naval Facilities Engineering Command
NAVFAC Southwest

Parcel E Remedial Design Draft Discussion Meeting

Former Hunters Point Naval Shipyard

March 15, 2017

Meeting Objective

Summarize key concepts in Draft RD and answer technical questions

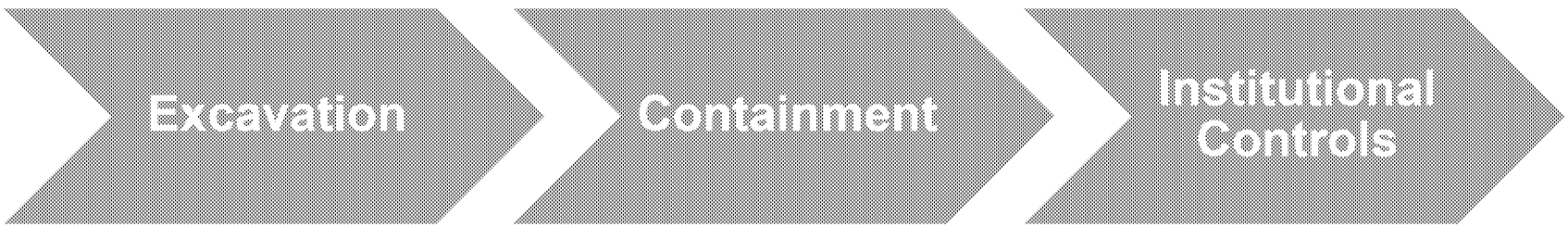
Strategy for:

- **Soil**
- **Soil Vapor**
- **Groundwater**

Review next steps to finalize RD

- **Comments on Draft RD due on March 29, 2017**

Strategy for Soil (Non-radiological)



- **Removal of soil exceeding the Tier 2 action levels (>5x RGs)**
- **Durable covers**
- **Prevent exposure to the remaining contamination exceeding the RGs**

Strategy for Radiological Media

Areas inside IR-02 and IR-03

- Will not be “free-released”
- Sanitary sewer, storm drain, septic lines will be capped
- Removal of contamination within upper 1 foot
- 2-foot thick soil cover with demarcation layer

Salvage Yard (IR-12)

- Surface scans and sampling in conjunction with excavations
- Final Radiological Survey

Areas outside of IR-02 and IR-03

- Storm drain and sewer line removal

Strategy for Soil Vapor

Prevent exposure by source reduction and pathway elimination

- **SVE inside Building 406**
- **Excavation in IR-04 and outside Building 406**

- **Building 406 and other VOC plumes, if needed**
- **Reduce groundwater source to vapor**

- **Prevent exposure to remaining residual contamination**

Strategy for Groundwater

Mixed Use Areas

VOCs

In-situ groundwater treatment

Targeted & short-term

"Groundwater treatment will continue until it is no longer the most cost-effective or environmentally sustainable option" (Parcel E ROD)

Near-shore plumes

Metals, PCBs, and Petroleum

Source removal (via excavation)

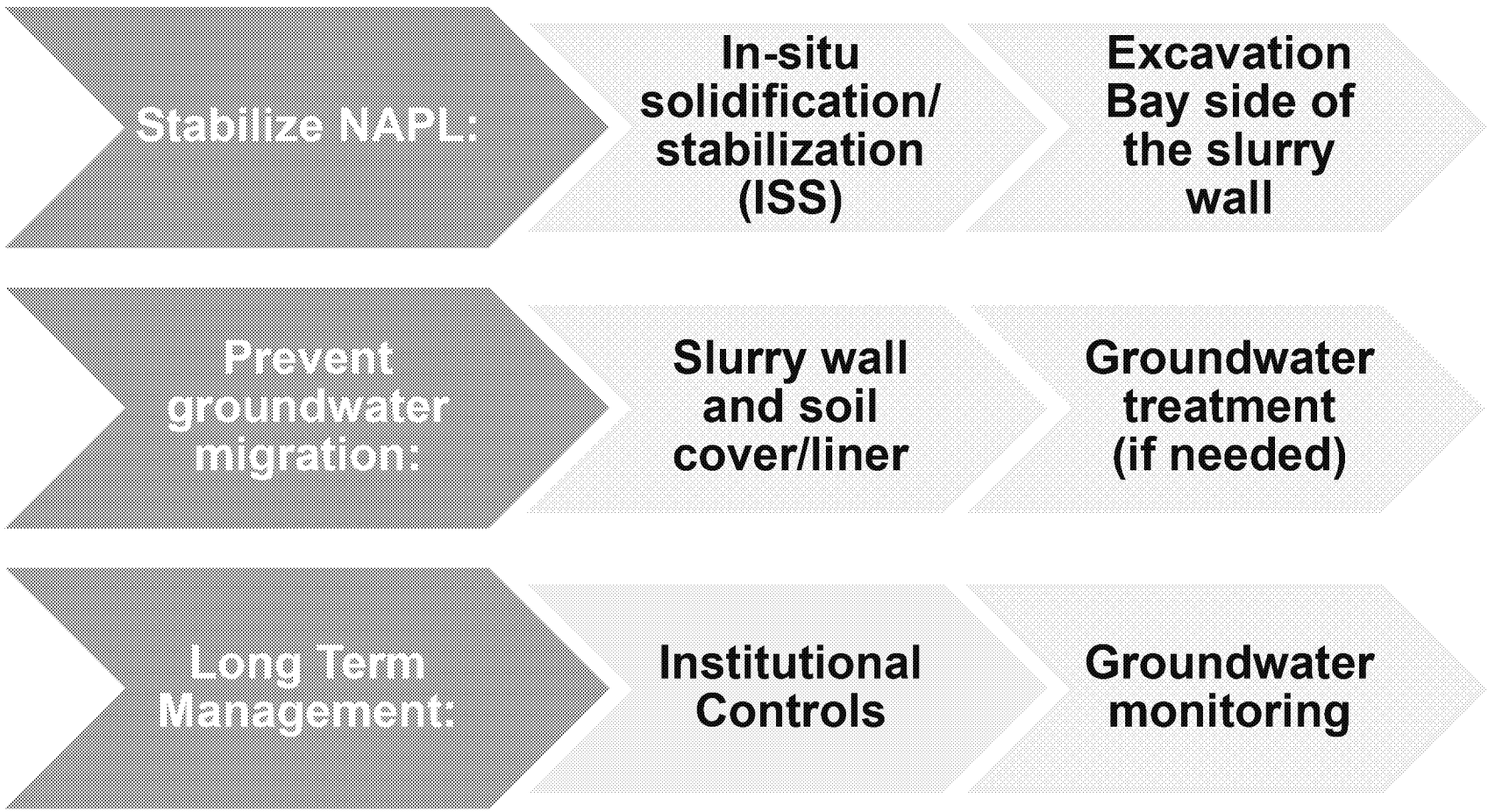
Containment at IR-03 via slurry wall

Containment at Northwest IR-02 via slurry wall

Protective liners in durable cover

Monitored Natural Attenuation and ICs to meet the RAOs

Strategy for IR-03 (Oily Waste Ponds)



Next Steps

Remedial Design Review Schedule

Respond to BCT comments and transmit Revised Draft RD (to include Remedial Action Monitoring Plan and Land Use Control RD)	September 2017
Transmit Draft Final RD	January 2018
Transmit Final RD	February 2018

RA Work Plan Preparation and Initiation of RA Field Work

Navy internal development will occur throughout RD review process, Draft RA Work Plan transmitted shortly after Final RD